EMERGING TECHNOLOGIES

Language Testing Tools and Technologies

Bob Godwin-Jones
Virginia Commonwealth University

Introductory Quiz

1. Testing has long been an integral part of language instruction:

   ○ True ○ False

2. Testing is used to... (check all that apply)

   ☐ place students in appropriate instructional levels
   ☐ assess learners' progress (for themselves or their teachers)
   ☐ ascertain and certify language proficiency levels

3. The preferred networking environment for delivering language testing is rapidly becoming the...

   [ ]

Extra credit.

The Educause-sponsored project to ensure interoperability among Internet-based assessment programs is the [ ].

Check your answers

Computerized Testing

Computers have been used in language assessment since at least the 1960s. The PLATO project at the University of Illinois pioneered the use of networked computers for language practice and testing. However, the use of computers in language testing did not become widespread and generally available until the advent of the personal computer in the late seventies and early eighties. Among the better-known software packages from the early (DOS) days is Calis from Duke University (still available as an unsupported product). It was designed for active drill and practice of grammar and vocabulary, rather than formal assessment. This was the case as well for Dasher, a widely-used Mac-based program from the University of Iowa. Both programs provided for varied feedback options and recognition/display of partially correct answers. In addition to dedicated language software, generic authoring tools were often used to develop language drill and assessment programs. The best-known of these are HyperCard (from Apple) and Toolbook (from Asymetrix, now click2learn) With both, multimedia could be integrated into the tests or exercises, allowing for more options, including assessing listening comprehension. The arrival of CD-ROM facilitated greatly the use of multimedia in language programs, by providing the necessary storage capacity.

There are today successors to these stand-alone authoring programs, such as WinCalis, the Windows version of Calis. One of the attractive features of WinCalis is its support for Unicode (ISO 10646), which allows representation of a great variety of languages and alphabets simultaneously in an application. MaxAuthor, from the University of Arizona, is another Windows-based authoring program for language testing and practice. It also supports a variety of languages, and lessons can be made Web-accessible.

Internet Applications

Although some testing applications have taken advantage of the availability of local area networks (particularly for storing scores centrally), the arrival of the World Wide Web in 1993 with its rich and powerful network environment provided a more attractive -- and ever more pervasive -- networking option. The Web offers the advantages of centralized delivery (and authentication) as well as server-based score storage and retrieval. Initially, the user experience with Web-based tests was not much different from pen and paper versions, with relatively little interactivity or user feedback. Some Web tests continue to use similar approaches with test scoring provided by e-mail or separate Web pages showing the answers (for the test taker to compare with his/her answers). The advantage of using the Web, however, is in the interactivity it enables. This is generally done through the use of Web form pages which are processed by CGI ("Common Gateway Interface") scripts, usually written in Perl. Tests delivered through CGI typically are in machine-correctable formats such as multiple choice or true-false, using checkboxes, radio buttons, or pull-down menus. Usually users must complete the entire test before submitting it and receiving feedback. In CGI-based formats, feedback options are limited and there is rarely recognition of partially correct answers.

In 1995, Netscape introduced JavaScript as an interpreted scripting language built into its browser, using object-oriented syntax borrowed from Java. Subsequently, Microsoft delivered a JavaScript compatible language with its browser ("JScript"), and two years ago ECMAScript, based on JavaScript and JScript, was adopted as an Internet standard. JavaScript adds considerably more flexibility to the processing of Web forms, allowing, for example, for question by question feedback to questions. With the arrival of JavaScript, language tests have begun to expand format options, adding short answer, matching, or sentence ordering, for example. JavaScript is not as well suited as CGI for secure testing since the source code is accessible to users. It is possible to provide some security through the use of temporary "cookies" (to hold answers), encrypted answer strings, or external scripts which dynamically write the Web pages, but these are not as secure as server-based CGI solutions. There has been an explosion of interest in recent years in using JavaScript in language testing (see resource list).

A more secure option than JavaScript is Java. Like JavaScript tests, Java applets can easily be distributed over the Internet, but since they are compiled, the source code is not viewable. Java has been used in language testing but mostly on an experimental basis. Java has suffered from slow performance, compatibility problems, and mediocre multimedia support. Some use is being made also of programs with Web browser plug-ins such as Director (see example) and Flash (see example), as well as multimedia players combined with quizzes, such as Quicktime VR (see example) or RealPlayer (see example). These can provide attractive interfaces and good multimedia support, but require users to have the necessary version of the plug-in installed. For both Java and multimedia authoring programs such as Director or Authorware, there is a steeper learning curve than is the case with basic Web authoring using HTML and JavaScript.

One area in which there has recently been considerable activity is the development of Web-based language placement exams. Among them are those from Macalaster, BYU, and Northwestern. All use a server-based CGI delivery for security reasons. Of interest is the use of a computer adaptive testing approach in some on-line placement exams, such as the WebCAPE Tests from BYU. The placement exams under development at Ohio State University use an adaptive testing mechanism combined with authentic language materials shown in their original context.

Authoring Tools

There has been a great deal of interest in recent years in the creation of Web-based tests and exercises through easy-to-use authoring tools. A number of such tools have been created specifically for language learning. WebPractest from Gary Smith, for example, allows creation of JavaScript-based interactive

exercises. One of the advantages of WebPractest is the ability to choose question-by-question or summary feedback. Tests are created in WebPractest through the use of a text editor. Hot Potatoes, out of the University of Victoria, is another tool developed for creating language tests. It is being widely used for a variety of languages. Its formats include multiple-choice, fill-in-the-gap, short-answer, jumbled-sentence, and crossword-type quizzes. Hot potatoes involves use of the Windows or MacOS version of its stand-alone authoring tool. No knowledge of HTML or JavaScript is required (although users with that knowledge can edit source files as desired). In addition to instant feedback, the program can also provide hints and clues.

A wide variety of test and quiz formats is available through the "Interactive Quiz Makers" from Dan Beeby (cloze, matching, multiple choice, memory). This tool uses a combination of CGI and JavaScript to deliver the quizzes. Several of the formats feature the use of DHTML ("dynamic HTML") to enable drag and drop functionality. This allows for considerably more interactivity. In the "Matchmaker2" format, for example, students drag and drop images to match a text cue; in "PlaceMaker3," students are given vocabulary words that fit into a specific location in an image and must use drag and drop to match.

In addition to these authoring tools, quiz/exercise templates are also available for language teachers, such as those from Marmo Soemarmo. His site provides examples of exercises in a great variety of formats: true-false, multiple choice, matching, feature or category identification, short answer, cloze, sentence generation, hypertext, memory, spelling. By downloading the source code for the examples provided, new content can be added by following the comments included in the code. Test and exercise templates for language learning are also available from Douglas Mills and George Mitrevski.

Many instructors in higher education today are using the testing mechanisms built into Web course management systems such as WebCT or Blackboard. These tools offer instructors an extensive set of features to include in Web-based course materials. The test formats vary, but at a minimum include short answer, multiple choice, true-false, and essay. The delivery is CGI-based. An exception are the quizzes in Web Course in a Box, which provide the option of more flexible feedback through JavaScript and also include built-in standard feedback in multiple languages.

Outlook

Computerized testing will inevitably increase in volume and scope. This is happening in all areas, including in major national and international standardized tests. This growth is not without controversy, as evinced in the reaction to the ETS announcement of the use of computerized testing in Africa. As schools demand more frequent standardized testing of students, more of that testing will migrate to computer formats. Many states provide practice tests for students on the Web, such as those from Edutest for the Virginia "Standards of Learning" exams.

In language testing, accelerating development of speech recognition technologies promises to provide new options in computerized testing which may involve both listening and speaking. It is likely as well that testing will become more customizable, with options for tailoring tests to individual students and their specific needs and backgrounds. XML ("extensible markup language") through its interactive "Document Object Model" (DOM) is likely to replace both HTML and JavaScript as the standard for creating interactive Web pages for language testing and practice. The IMS Project ("Instructional Management System") uses XML as a standard for describing questions and tests. The idea is to enable and encourage the interoperability of content within assessment systems, a very useful development for individual instructors, as well as for publishers, certification agencies, and software vendors. Several software companies, such as Blackboard and WebCT, are already using the IMS specifications and XML to enable import/export functionality. The University of Baltimore recently took advantage of this feature to move courses from one course management system to another.

On the server end, JSP ("Java Server Pages") is becoming an attractive alternative to CGI. JavaServer Pages technology uses XML-like tags and scriptlets written in the Java programming language, but incorporated into the HTML code, to provide an equivalent to CGI. Java "servlets" residing on the Web server are able to interpret this code and execute the processing of the Web forms. The idea is to separate the page display and formatting from the programming logic, so that interactive pages can be created and maintained by conventional HTML/XML tools. While the approach is similar to that used by Microsoft's ASP ("Active Server Pages"), the JSP approach provides more programming and scripting flexibility as well as multi-platform support. In any case, there is likely to be a database back-end that keeps test information, including questions and answers, as well as scores. There are well-established methods for connecting databases with Web servers, such as ODBC ("Open Database Connectivity"). A popular method to interact with databases is the use of middleware or application development software such as ColdFusion (from Allaire, recently merged with Macromedia), Tango, or Lasso.

Resource List

Web-Based Testing Resources

- The Language Tester's Guide to Cyberspace excellent guide from Glenn Fulcher
- Resources in Language Testing Page by Glenn Fulcher
- "Language Testing" on WWW from Doshisha University, Kyoto, Japan (K. and S. Kitao)
- Language Testing Resources from the Center for the Advancement of Language Learning
- Foreign Language Test Database from CALL, listing 140 tests in 63 languages
- Assessment & Evaluation on the Internet links to web pages of organizations, etc., with annotations
- Ericae.net resource collection on assessment and evaluation
- Education Standards and Testing links to web sites related to testing

Organizations and Institutions

- International Language Testing Association
- ALTE The Association of Language Testers in Europe
- Cambridge EFL Examinations
- English Language Institute (ELI) Testing-Certification from the University of Michigan
- ETS Educational Testing Service, its tests, and links to other test-related resources
- ILTA International Language Testing Association includes links to LTRC Program Booklets
- Local Examinations Syndicate (UCLES) from the University of Cambridge

Language Tests

- Oral Proficiency Testing ACTFL
- IELTS - English language test from the British Council
- TOEFL practice questions for the widely used TOEFL exam
- Basic English Skills Test (BEST) from the Center for Applied Linguistics
- Examination for the Certificate of Proficiency in English (ECPE) from the University of Michigan
- The Michigan English Language Assessment Battery (MELAB) University of Miichigan
- Examination for the Certificate of Competency in English (ECCE)
- The STEP test (in Japanese)

- Advanced Placement Program from the College Board

Sample On-line Practice Tests

- Language Tests for English Language Learners from Ohio University
- ESL Quiz Center links to quizzes, from Dave Sperling
- TransWord Foreign Language Tests / Exercises
- V-LASSO Vocational Language Assessment On-line
- Self-Study Quizzes for ESL Students from The Internet TESL Journal's Activities for ESL Students
- Cutting Edge CALL Demos from Jim Duber
- Spanish Language Exercises from Juan Roman de Arana
- French Grammar Exercises from the University of Texas

Language Placement Tests On-line

- WebCAPE Language Placement Tests from the Humanities Research Center, Brigham Young University
- Foreign Language Placement Tests from the Multimedia Learning Center, Northwestern University
- Placement test (German) from Macalester College

Test Makers, Tools, and Templates

- Dasher
- WinCalis from Duke University
- MaxAuthor from the University of Arizona
- WebPractest by Gary Smith (William and Mary)
- Hot Potatoes from the University of Victoria Humanities Computing and Media Centre
- Review of Hot Potatoes
- Sites using Hot Potatoes
- Web Author from the Language Resource and Research Center at the University of Pennsylvania
- Interactive Language Makers from Dan Beeby
- Webgen 2000 (Java-based) from the University of Lethbridge
- Marmo's JavaScript Templates by Marmo Soemarmo
- JavaScript for Language Learning from the LinguaCenter, University of Illinois
- Knowledge Design from George Mitrevski (Auburn)